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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,635	09/16/2003	Syamal K. Ghosh	86291RLO	1910

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EXAMINER	
BECK, DAVID THOMAS	

ART UNIT	PAPER NUMBER
1732	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,635	GHOSH ET AL.	
	Examiner	Art Unit	
	David T. Beck	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/16/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 9 and 10 recite the limitation "the controlled atmosphere". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4 – 7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura et al (5,358,788).

With regard to claim 1, Kawamura et al teach a method for forming homogeneous mixtures of powders of organic materials including at least one dopant component and one host component to provide a homogeneous mixture for use in thermal physical vapor deposition (column 22, lines 23-28) to produce an organic layer on a substrate for use in an organic light-emitting device (abstract), comprising: a) combining organic materials, such materials including at least one dopant component and one host component (column 20, lines 50-68, column 21, lines 1-31); b) providing a solvent with the organic materials to form a suspension of organic materials in the solvent (column 20, lines 54-58); c) mixing the suspension at a temperature sufficient to form a solution of the organic materials in the solvent (column 20, line 53); and d)

evaporating the solvent from the solution leaving a homogeneous mixture of organic powder (column 21, lines 30-31).

With regard to claim 4, Kawamura et al teach that the solvent is tetrahydrofuran and such solvent is added to the organic materials (column 20, lines 51-58).

With regard to claim 5, Kawamura et al teach that the organic materials are added to the solvent (column 21, lines 3-6).

With regard to claim 6, Kawamura et al teach that the solvent further includes dichloromethane (column 21, lines 25-31).

With regard to claim 7, Kawamura et al teach heating the solution at a temperature of 50 degrees C (column 21, line 2), which falls within applicant's claimed range of between 50 and 100 degrees C.

With regard to claim 10, Kawamura et al teach a controlled atmosphere of argon gas (column 20, lines 51-53).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al (5,358,788) in view of Yukinobu et al (6,511,614).

With regard to claim 2, Kawamura et al teach the invention of claim 1, but do not

explicitly teach compacting the homogenous mixture of organic powders, to form a pellet suitable for thermal physical vapor deposition to produce an organic layer on a substrate for use in an organic light-emitting device. Yukinobu et al teach compacting the homogenous mixture of organic powders, to form a pellet suitable for thermal physical vapor deposition to produce an organic layer on a substrate for use in an organic light-emitting device (column 11, lines 15-37). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to compact the powder taught by Kawamura et al into a pellet. The motivation to do so would have been for ease of handling and transporting the material.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al (5,358,788) in view of Yukinobu et al (6,511,614) and Chaklader (2002/0048548).

With regard to claim 11, Kawamura et al in view of Yukinobu et al teach the invention of claim 2, but do not expressly disclose pelletizing the powder at a range of pressures between 3,000 and 20,000 pounds per square inch. Chaklader teaches pelletizing the powder at a range of pressures between 3,000 and 20,000 pounds per square inch. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to pelletize the powder at a range of pressures between 3,000 and 20,000 pounds per square inch. The motivation to do so would have been to form a pellet of the desired density.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al (5,358,788) in view of Ozaki et al (6,872,476).

With regard to claim 3, Kawamura et al teach the invention of claim 1 as discussed above, but do not explicitly teach that the dopant component varies between 0.1 and 20% by weight of the total mixture weight. Ozaki et al teach that the dopant component may range from 0.01% to 10% by weight (column 26, lines 66-67), which falls within the claimed range of 0.1 to 20% by weight. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add the dopant in the amount of 0.01 to 10% by weight in the process taught by Kawamura et al. The motivation to do so would have been to improve the durability or luminous efficiency of the device (Ozaki et al, column 26, lines 55-59).

9. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al (5,358,788) in view of Tsubota et al (5,840,267).

With regard to claims 8 and 12, Kawamura et al teach the invention of claim 1, but do not explicitly teach that the mixing includes using an ultrasonic horn at 10-30 kHz. Tsubota et al teach that the solution is mixed using an ultrasonic horn at 29 kHz. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to mix the powder in the process of Yukinobu et al with an ultrasonic horn at 29 kHz. The motivation to do so would have been to insure complete mixing.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al (5,358,788).

With regard to claim 9, Kawamura et al teaches the invention of claim 1 as described above and that the solvent is evaporated under reduced pressure (column 21, lines 27-29), but does not explicitly teach a controlled atmosphere at a pressure in a

range of 10^{-1} to 10^{-3} Torr causing the solvent to evaporate and form the homogeneous mixture of organic powder. However, official notice is taken of the fact that is it well known to maintain the atmosphere at a reduced pressure in the range of 10^{-1} to 10^{-3} Torr in order to increase the rate of evaporation of a solvent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David T. Beck whose telephone number is 571-272-2942. The examiner can normally be reached on Monday - Friday, 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 517-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DTB
August 1, 2005

MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER

DTB